THE VETERINARY RECORD

A Weekly Journal for the Profession.

No. 407. APRIL 25, 1896. Vol. VIII.

The Late Principal Veterinary Surgeon Collins.

Last week we republished from *The Army and Navy Gazette* an article under the title "An Able Administrator." We feel certain our contemporary would not have published the article unless they were assured of its truth. We therefore feel that an explanation or apology is due from us for not having noticed the decease of a man who not only did his duty well, but also contributed in no small degree to the position now held by the Army Veterinary Department.

It was not negligence but a deliberate abstention that caused us not to notice the decease of P.V.S. Collins. The late gentlemen after retiring from his position never once associated himself with the veterinary profession, and had put alongside his name in our Register "not to be addressed." We concluded that he was more than indifferent to the profession in which he had made his position. We knew no work he had ever done for us, and we decided that such apparent want of interest might best be treated with silence.

We unwittingly did the deceased gentleman a gross injustice. From the article referred to we gather that to P.V.S. Collins is due the credit of the establishment of the Army Veterinary School at Aldershot; of obtaining increased pay and pension for Army veterinary surgeons; of forming an Army Veterinary Department; of establishing the annual Army veterinary statistical returns; of organising the regulations which stamped out glanders in the Army; and of obtaining for the profession the privilege of presentation at Court.

This is a long list of admirable deeds, and we can only express our great regret that we had given the credit for most of them to another person, and were thus guilty of an act of great injustice to Principal V.S. Collins, who is well called "An Able Administrator" by our contemporary *The Army and Navy Gazette*.

Veterinary Skiagraphs

The products of the new photography by means of Professor Röntgens *x* rays are apparently to be known by the term Skiagraphs. In *The North British Agriculturist* last week was published a picture of the hoof of a horse taken by Professors Paton and Duncan of the Royal Agricultural College. The skiagraph shows the pedal, navicular, coronary, and (in part) the pastern bones. Any fracture would have been quite evident, and the picture suggests that some assistance may be given to veterinary diagnosis of lameness.

Unfortunately we are not told if the picture was obtained from a dead specimen. We rather think it must have been, and therefore its value is not much. Clearly to keep the parts quite still is necessary or we should have such a blurred picture as to be useless. To keep a horse's limb still is no easy thing, and in painful cases it may be impossible. It is a step further at any rate to know that hair, skin and hoof offer no impenetrable barrier to the *x* rays and that, if movement can be prevented, we may examine the bones within the hoof very accurately.

The Public Health (Scotland) Bill.

This Bill is down for second reading on April 30th and care must be taken that no amendment is slipped in which prevents the veterinarian having a share in diagnosing the diseases of milk cows. Section 60, which provides that a medical officer is to be accompanied by a veterinary surgeon when he examines "animals" in a dairy, is almost a verbatim copy of Section 71 of the Public Health (London) Act. This Act was passed in 1891 and five years experience has not shown that the clause is objectionable.

That it is very necessary is made clear by a number of cases which our readers will remember. Medical officers when left to themselves to diagnose the diseases of animals have fallen into the most deplorable errors, and caused the owners of dairy stock such trouble and loss as to amount to a public scandal.

The notorious Hendon case, in which a medical officer jumped to the conclusion that scarlet fever, which was undoubtedly spread by the milk, arose from some disease of the cow's udder, cost the dairy farmer £1,100 and indirectly caused his death within the year. Since that we have had diphtheria traced to some indefinite condition of the cow. Scarlet fever on two or three occasions has again been credited to the cows, and one medical wiseacre thought he had traced a causal connection between typhoid fever in man and swine-fever.

A scientific man with a crank is a most dangerous person, and it is only necessary to point out to Parliament the folly of trusting the diagnosis of animal diseases to medical officers, to prevent much injury and injustice. Every veterinarian who has the ear of a Member of the House of Commons should warn the legislator that an attempt to move an amendment to clause 60 will probably be made. We only want the truth known to prevent this egotistical attempt on the part of medical officers being successful.

It is worthy of note that the suggestion to displace the veterinarian comes from Glasgow. We all remember the scarlet-fever outbreak in that city when Professor McCall so logically and thoroughly upset the attempt of his medical officer to trace the disease to "some disease in the cows' udders." Can this defeat have anything to do with the attempt to put aside in future any qualification of the theory formed by a medical officer?

GLANDERS IN LONDON.

The proved efficacy of mallein in detecting undeveloped cases of glanders has made easy the stamping out of the disease. Any owner of an infected stud may by the injection of mallein now pick out in twenty-four hours every animal that is infected and so prevent the further spread of the disease in his stables. When mallein was unknown, this desirable result could only be obtained after some months of the greatest care and watchfulness, and in many cases only after the lapse of one of two anxious years.

The difficulty with glanders has always been the "latent" stage of the disease. We knew that horses might be infected for months without giving any external sign of disease, but we had no means of detecting such cases. We were obliged to wait for their clinical development, and very often this was not noticed until infection had been transmitted to other horses. Quite unsuspected by the owner these undeveloped cases were permitted to remain in contact with his other horses, and even to be sold and pass into stables free from disease.

This difficulty is now at an end, and any owner possesses the power to detect every case of disease before it reaches the stage when it becomes dangerous to other horses.

How these "latent" cases which are discovered by mallein should be treated is an important question. The interest of the owner is to clear his stud as soon as possible compatible with economy. He may slaughter every infected animal, he may work them from a stable so placed that his other horses are not in danger of infection, or he may sell them at auction. These three courses present advantages and disadvantages. Immediate slaughter has the advantage of at once putting a stop to the infection of the stud, but it is costly. Continuing to work horses (identified by mallein as infected) from a partial isolation-stable has the disadvantage of retaining, more or less in contact with healthy horses, animals some of which may develope glanders in a contagious form. This is not a probable event, for the disease is difficult to transmit out of the stable, and quite harmless in a stable where only horses already infected are in contact.

It must also be remembered that horses which have never shown any clinical sign of glanders and which are only classed as infected because they have reacted to mallein, may be the victims of what is practically a local lung disease. No evidence has ever been adduced to show that such horses are infective but, on the contrary, there is some evidence that the early lung lesions are stopped from further development by the therapeutic action of the mallein. There are many horses now in London which have worked for 12 or 18 months after reacting to mallein without showing any clinical sign of glanders. The best cared-for horses only average about five years of working life. The mallein-selected horses if worked under careful stable regulations would do no harm, they would save the heavy loss resulting from immediate slaughter, and they would gradually die out from the ordinary causes which act upon working horses. Only one precaution is essential—they should not be sold.

The third course open to an owner who has used mallein is to sell all horses that react. This may perhaps be illegal and it might possibly be discovered if clumsily handled. It certainly is immoral, and dangerous to anyone who purchased the infected horses and stabled them with healthy ones.

So far we have considered only what a private owner may do Clearly he cannot regulate the studs and stables of other men, and therefore the law must be invoked to make the indifferent, the ignorant, or the dishonest owner do what the better men do voluntarily. Between the best and the worst is a rather large class who just want stimulating and guiding. They will co-operate in carrying out regulations for their good, but their reward must not be too remote, and their immediate loss must not be too great or they become luke-warm. If all horse owners were as learned as veterinary professors and as rich as Rothschilds glanders would be stamped out in Great Britain in a week. Unfortunately they are neither, and some consideration must be given to such mundane matters as poverty and ignorance.

Mallein is after all only a useful aid to diagnosis. It has made no radical alteration in human nature, and it has afforded no reason for attempting the reversal of the established principles and practice of legislation against contagious disease in animals. The experience of 30 years of State veterinary medicine has demonstrated beyond cavil that success in stamping out depends greatly upon the willing co-operation of owners of affected animals. The owners of horses would be only too glad to see glanders exterminated. They have suffered enough.

From 1885 to 1895 the owners of horses in London, and the surrounding districts infected from London, have lost 17,484 horses. If we value them at £20 per head the cost to private owners has amounted £349,680, and the cost to the ratepayer of inspection and supervision has reached at least £35,000 more. The effect on disease of all this expenditure and loss is that the returns of cases of glanders were last year greater than in 1884.

The loss of horses belonging to private owners is not the only reason why glanders should be stamped out. A well considered effort should be made (*a*) to protect human life, (*b*) to ensure the efficiency of our Army, (*c*) to protect the owners of healthy studs.

The protection of human life has been said to be a small matter in this connection because the deaths from glanders do not exceed 3 per annum. The number is small but it has been going on for a century or two, and will continue so long as we allow the disease to exist. Only from a glandered horse can a human being become infected, and therefore by stamping out glanders in horses we positively and certainly prevent human fatality from the disease.

The inefficiency which has affected our army in times past from the prevalence of glanders is known to all military men and to readers of history. Only as late as the last Egyptian war the horses of an Indian cavalry regiment landed at Ismalia were put *hors de combat* because found to be glandered. After

immense trouble and at great cost the British Army has been cleared of glanders. Constant attention has kept it clear for some years but good luck plays a part in this. In London, Middlesex, Essex, Kent, and Surrey we had last year 1273 horses killed as glandered. In this infected district over 4,000 army horses are located and the disease has more than once been so near them as to have affected the horses of officers. When the late President of the Board of Agriculture was apprised of this danger by a member of a deputation he curtly hinted that it was of no importance "as the War Office had made no complaint to his department." If the War Office desire to protect the army from glanders the simplest course they can pursue is to help the stamping out of disease in the stables of civilians by indicating to the Board of Agriculture the large interests involved and the reality of the danger. Were there no glanders in the civilian studs there would be no risk of infection to the army.

The owners of healthy studs may well claim that protection from disease should be given them. No matter what care they exercise they are liable to infection so long as 500 centres of disease are permitted to exist in London, Private stables in Belgravia and Mayfair have been infected. The splendid studs of heavy horse to be seen in the vans and drays of the metropolis have all been infected at one time or other and some have been decimated. After months of trouble and at an expense of hundreds of pounds they have become clean again, but only to be liable to re-infection. The private owner can only look to the authorities to protect him from surrounding infection. The law at present in force is sufficient if the local authorities would fully administer it, and if the Central authority would use its powers to stimulate the negligent locals.

Existing regulations provide that owners of glandered horses shall notify the police or the veterinary inspector. Without this notification the authorities would detect no cases until they reached the slaughter house. Before arriving there an infected horse might have lived with other horses for months, have been sold two or three times, and have recovered from more than one distinct clinical development of the disease. Notification in the early stage of disease can only be expected from poor owners when they are assured of fair treatment and of some assistance in their misfortune. When worry, labour and loss of property are all that follow notification me may expect owners to give only very unwilling assistance to the authorities.

Inspection in London is performed by ordinary practising veterinary surgeons. This is a good enough plan when their only duties are a kind of registering of deaths. If real inspection of studs and stables is to be carried out the work can only be done by veterinary inspectors who have no private clients in the district and whose whole time can be devoted to the suppression of disease.

Slaughter of diseased animals is in London carried out very thoroughly, and some thousands of pounds are wasted in carefully boiling the carcases. If one half the care bestowed upon carcases were given to the living horse (which alone is infective in practice) we should before now have got rid of glanders.

Detection of latent cases is systematically neglected, and this is the most serious defect in existing regulations. Whenever a diseased horse is found in a stud, such examination of the horses that have been in contact with it should be instituted as would lead to the detection of every infected horse. Mallein should be employed. The horses that react should be allowed to work under observation and from a stable providing some isolation.

Compensation. The increased recognition given to mallein and the reliable detection of disease by its use is a further argument, if one were needed, in favour of paying reasonable compensation to the owners of horses which are slaughtered as glandered. So sensitive is mallein to the presence of glanders in the animal system, that violent reaction has often been noticed in horses whose carcases showed not more than two centres of infection, each the size of a mustard seed. In some cases the most patient search has failed to find a trace of glander-nodule in the lung of a horse that has reacted to mallein. Such cases as these cannot be slaughtered without compensation if the owners of horses are to give their co-operation in any scheme of thorough stamping out.

Cattle-plague, foot-and-mouth disease, pleuro-pneumonia, and swine fever have all been attacked in this country by the poleaxe. In each case compensation has been paid to the owner of slaughtered animals. Parliament has ordered it, the Board of Agriculture has arranged it, the taxpayer, the stock-owner, and the veterinarian have approved it. In London—the great centre of glanders—the local authority has declined to pay compensation, and has thus spoiled the effect of otherwise good regulations.

It is only a waste of time to enter into a discussion of the metaphysical question whether compensation "can be claimed as a right." We are content that the principle of compensation is recognised by the State and that provision has been made in the law for its payment. Whether it should be paid or not is quite a matter of expediency. No success attends efforts made without compensation. When London horse-owners lose £20,000 per annum from glanders and London ratepayers spend £5,000 per annum on unsuccessful measures to control the disease, the only question for practical men to consider is—will it not be cheaper and better to pay £10,000 or £15,000 for a year or two than to continue for ever the enormous cost now incurred? It has been ironically said that compensation "would be very popular with horse-owners." If so it would favour early notification and would facilitate the detection of disease. Granted these two, and a case is made out for compensation. Any local authority with good regulations, a proper system of inspection, and fair compensation, can stamp out glanders in three years.

W. H.

A PECULIAR PHARYNGEAL CASE.

By Professor Jas. McI McCall, M.B., C.M.

The patient, a brown Clydesdale gelding of considerable value, was admitted to the Infirmary in the month of November, suffering from "sore throat" for which he was treated and recovered.

Upon Saturday, 27th December, a fortnight after his discharge, a relapse occurred and the symptoms of "acute laryngitis" were soon manifest. The difficulty of breathing became so great that asphyxia was imminent, and on Sunday morning tracheotomy was performed. After this the breathing became natural and the animal, although salivating and coughing frequently, was not much distressed, and seemed to be progressing favourably towards recovery.

On Wednesday, 1st January, 1896, on visiting the patient I found a peculiar swelling of the nose, which frequently is associated with purpura hæmorrhagica and is sometimes its earliest visible symptom. Corroborative evidence of the presence of this disease was obtained from the appearance of the nasal mucous membrane, which at points showed petechial hæmorrhagic spots.

Having verified the diagnosis I put the animal under the following treatment, viz., intra-tracheal injections through the tracheotomy tube, of a solution of iodine, iodide of potash and water twice daily. Inhalations of iodine and turpentine, and local applications of acetic acid and cold water to the various swellings as they appeared at different parts of the body. After a week of this treatment the purpura symptoms gradually disappeared, and the pulse, respirations and temperature became normal. The throat still, however, remained in an irritable condition, and in a few days the animal experienced great difficulty in swallowing, the act of deglutition being accompanied by a visible spasmodic contraction of the œsophagus which made it wriggle, as it were, in front of the bolus, partially closed it, and prevented the onward passage of the food. In the case of water, a little passed down with difficulty, and in doing so a peculiar sound was emitted not unlike a suppressed hiccough, whilst the bulk of both the food and water was returned by the nostrils. During all this time the tracheotomy tube was in position as it could not be dispensed with, and the throat was very painful. The phenomena which now accompanied attempted deglutition were very peculiar and unique. Each day the animal got worse, and latterly was entirely unable to swallow any solid food, and when it attempted to drink the water was returned partly through the nostrils and to a very considerable extent through the tracheotomy tube, whilst very little reached the stomach. The poor animal was now quite anxious to eat and drink, but scarce a drop, although in the form of thin gruels, passed down the œsophagus to the stomach.

The great peculiarity of this case, and the point to which I wish to draw special attention is, that although a steady stream of water or thin gruel flowed out through the tube when the horse was drinking, yet he never coughed during the process, and only occasionally coughed after the stream had ceased to flow. This was a most unusual condition, because from experience we all know the effects produced in our own throats when a drop of water or other liquid, or a crumb of bread enters the larynx, whilst here is a horse, with a stream of water passing through the larynx into the trachea, and out of the tracheotomy tube and yet there is no pain, or irritation, no coughing, no increase in the number of respirations, and in fact the peculiar route taken by the liquid seems not to irritate the parts nor annoy the animal in the slightest. From these symptoms I concluded that the case was one of derangement of the nervous supply of the œsophageal muscles and paralysis of the sensory nerves supplying the larynx and trachea, and in the hope that the conditions might be temporary I adopted the following treatment:—Nutrient enemata per rectum of beef tea, and milk and eggs, administered alternately at intervals of two hours, and local applications of medicated poultices to the animal's throat. This was continued for a week, and at the end of that time the conditions gradually improved and the power of deglutition began to return, and as day succeeded day it increased, until the animal was enabled to drink and eat in the natural manner. All medicinal agents were then stopped, and good food in small quantities given frequently, and at the present time, February 6th, the orifice left by the removal of the tracheotomy tube, which took place a fortnight ago, has now almost entirely closed, and the animal is feeding well and getting exercise daily.

THE TREATMENT OF BURNS.

By P. M. Walker, M.R.C.V.S., Halifax.

On the 3rd of February last I was called to attend a case of extensive burning, but before going I inquired into the history of the case, which enabled me to prepare and take with me what I required. The subject was a valuable three-year-old, short-horned bull, rather lean, with a very long coat; he was infested with lice, and in order to destroy the same the keeper soaked with paraffin oil the animal's head, neck, breast, whole length of back and sides; this was done by candle light. Somehow the paraffin caught fire, suddenly the parts mentioned were in a blaze. I was not called in until three days after the accident, and I found the poor animal in a most deplorable state, the moaning was heartrending, constantly striking with his hind legs as if suffering from colic, the head and muzzle similar to those of a hippopotamus, eyes closed and discharging, ears shrivelled up, an enormous excoriated swelling all along the lower jaw giving off a sickly discharge, and all the other parts were corrugated and hard, having the appearance of an elephant's hide. The treatment adopted by the keeper was carron oil, this I carefully wiped off as best I could. My treatment consisted of painting the whole surface with tincture of iodine in the first place, this took about 16 oz. I then prepared a bucket of starch, and with an ordinary whitening brush I put on one coat after another until the whole surface was $\frac{1}{8}$ of an inch thick. I gave instructions for the brush to be drawn through any

cracks that might appear in my absence. I called again in two days, and meeting the keeper before reaching the patient, I enquired how he was, his own words were "first rate, he has not moaned or kicked since you left." I again painted some parts, especially under the jaw and round the eyes, following with the starch. On my third visit I found a cover on the loins which the keeper put on to prevent shivering. This I ordered to be taken off as the heat underneath was intense and caused perspiration, whereas the other parts were cool and dry. I again dressed this part and treated as before. No further treatment was requisite beyond applying the starch where it came off. In a month the skin began to exfoliate in large pieces, the only sloughing was a little on the loins where the cover had been, and around the eyes, but both ears sloughed off at the base. The animal could take nothing but milk and gruel for ten days, owing chiefly to the extensive swelling and excoriation of the mouth; he was all right in about six weeks.

I may say that when in practice in Ayrshire I had some experience at Eglington and Portland Iron Works of extensive burns in horses. I had as many as three cases in two months at Eglington Works. The surface burned in each case averaging about six feet square. I used about 14 oz. in one application for each case, following up with the starch as already described, these were all ready for work in about five weeks. There was not a vestige of sloughing in either case, the skin fell off in pieces about a foot square, perfectly dry, leaving new skin formed underneath. There was only one application of iodine in each case.

I was called in consultation at that time to a protracted case the result of burning, at Portland Iron Works, which had been under the treatment of carron oil, zinc sulph., and acet plumbi for several months. I found a large excoriated and irregular surface with several deep, sloughing sores, and the discharge so characteristic of burns running in streams. After preparing the parts, I dressed with the tincture until I had it well coated, and left a supply of the same in order to paint again, if sloughing re-appeared. I never saw the case again inasmuch as it was successful. I was requested about this same time by a doctor in Ardrossan to attend a woman who had severely burnt the whole length of back and shoulders, and had been under this doctor's treatment for three months. After considerable hesitation I consented to attend this case, and found on examination the above surface was excoriated and discharging freely. I first ordered a cage making the full size of shoulders and back, in order to keep the bed clothes from touching the parts. I then sponged and dried the whole surface, and only painted the shoulders in case I might iodise the patient. Next day I found this part looked dry and had a healthy appearance, whereas the other part looked angry and the discharge flowing as before. I dressed the back, and the following day the whole was coated and healthy, with the exception of a deep sore in the centre of back, but even this responded to the same treatment and the woman derived great comfort from the application, and was able to be out in three weeks. I may say that any pain caused by the iodine was momentary and slight, the tincture was made double strength with sulphuric ether it being more cooling, soothing, and volatile than spirits.

It was deemed advisable, before I left Ayrshire, to always have a good supply of the tincture at the iron works for the benefit of the men in case they were burned. Iodine is not only an antiseptic, but it has a wonderful effect in preventing and arresting spreading and sloughing in such cases, and the starch application speaks for itself. Although we are not often called upon to treat burns, I thought the above cases might be of interest to some of your numerous readers.

HOW GLANDERS SPREADS FROM LONDON.

It is related that once upon a time a dispute arose betwixt a wolf and a lamb as to who defiled the stream.

The stronger party won by substituting force for argument, but the lamb is stated to have recognised the injury inflicted upon him and to have protested. There are lambs now-a-days who suffer injury from the polution of neighbours, but who neither recognise nor resent it.

London is a centre of contagious equine disease. London infects all the districts surrounding, it but the lamb-like authorities seem rather to like this and go on paying for damage without a protest.

The counties of Middlesex, Essex, Kent and Surrey should have no more glanders than Bedford, Lincoln, and Norfolk. There is nothing in their stabling, fields, or management save what is found in all other counties. Then why should they have as many cases of glanders every week as the others have in a year or more? The answer is simple—because glandered horses from London infect their stock. Ask any veterinary surgeon in the counties the history of an outbreak of glanders. He will tell the same tale always—"it was brought here by a horse purchased in London."

The remedy is simple. These injured districts should, through the County Councils, appeal to their Parliamentary representative to obtain the assistance of the Board of Agriculture in requiring London to stamp out the disease. London could do this if it would only act up to the full powers given under the Order of 1894.

The following table will show the heavy loss inflicted upon four counties adjoining London by the prevalence of glanders in town.

	Middlesex	Essex	Surrey	Kent
1885	43	15	12	11
1886	30	16	11	6
1887	50	12	11	10
1888	50	21	13	16
1889	66	23	12	15
1890	58	20	17	7
1891	81	22	24	10
1892	107	40	33	16
1893	89	35	40	21
1894	60	36	12	16
1895	109	81	23	18
	743	351	208	146

If we value the 1448 horses at £20 each we find these four counties have, between 1885 and 1895, lost just short of £29,000. This has been going on for years, and will go on for ever with the present regulations.

Surely the County Councils might reasonably protest against London continuing to infect them.

EXTRACTS AND NOTES.

TETANUS AFTER FIRING AND CASTRATION.

"E" writes to *The Field* as follows:—"In a recent number a correspondent reported a case of lockjaw in his mare, which took place after firing and blistering for curbs. The malady is well known to appear occasionally after castration, and also after docking. It would be interesting to know whether tetanus is prevalent in your correspondent's district. The bacillus of the disease is more common in some places than in others. I am informed horses are very liable to tetanus after castration in some parts of Cornwall, and that in Scotland, the county of Dumfries is similarly infected. The disease may be prevented, but cannot be cured, by the injection of anti-toxin serum—at least so it appears from a paper read last year by Professor Nocard, of the Veterinary College, Alfort, before the French Academy of Medicine. It will be found translated into English in the *Journal of Comparative Pathology*. The communication is worthy of the attention of veterinary surgeons, and especially of breeders living in neighbourhoods where the soil is known to be infected with the tetanus bacillus. That animals may be rendered immune against the poison of tetanus has been abundantly demonstrated by inoculating them with small doses of tetanus toxin, and gradually increasing the quantity in a few successive operations. There comes a time when the animal is proof against considerable doses of the poison. Professor Nocard, in conjunction with MM. Roux and Vaillard, have thus immunised certain horses so effectually that they could with impunity inject, at one time, into a single animal enough tetanus toxin to kill 2,500 horses. Professor Nocard recommends that in all districts where tetanus of the horse is frequent after accidental or surgical injuries, recourse should be had to preventive injections of anti-toxin serum. There exist in the north-western suburbs of Paris several communes where pricks, wounds, amputations, and other injuries, accidental or surgical, are commonly followed by tetanus. Accordingly here was favourable ground for experiment. During the first six months of 1895 M. Nocard distributed anti toxin serum among twenty-six veterinary surgeons practising in the infected localities. During six months, over which the experiment extended, these practitioners did not lose a single case out of 375 animals treated (327 horses, one ox, and forty-seven sheep); while, during the same time, they observed fifty cases of tetanus in animals that were not treated, twenty-nine being in horses and twenty-six in sheep. All the animals treated belonged to stables, farms, or hamlets where tetanus had claimed victims some days, weeks, or months previously, and a number of them were the actual neighbours of tetanic animals. The serum showed itself in every case absolutely inoffensive, and not one of the treated animals took tetanus. It is well to add that Professor Nocard renounces, for the present at least, all hope of being able to cure developed cases of tetanus by the treatment. The disease is of slow incubation, and by the time that any symptoms of tetanus manifest themselves, the poison has done its work without possibility of effective counteraction.

RABIES.

Return as to dogs seized by the Police, and as to rabid dogs in the County of London:—

	During week ended April 18.	Since the Muzzling Regulations came into force February 17th.
Number of dogs seized by the Police	871	14,479
Number of dogs claimed at Police Stations	202	3,205
Number of dogs taken to Dogs Home	669	11,274
Number of dogs claimed at Dogs Home	39	459
Number of dogs destroyed or disposed of	630	10,815
Number of rabid dogs killed in London	4	46

IMMUNISATION AGAINST SERPENTS' VENOM.

By Professor FRASER, M.D., LL.D., F.R.S.,

INTRODUCTORY.

While medical science and practice have hitherto failed to discover any certain means for protecting man against the effects of serpents' bites, or for preventing death from serpents' venom, it is strongly suggested by traditions as well as by the narratives of travellers that some success in attaining these objects may actually have been obtained by the members of uncivilised tribes and sects. Many of these traditions and narratives are of great significance, and in connection with facts derived from experiment, they possess a deep interest. We learn from them that from a remote period the belief has existed that a power may be acquired by man of freely handling venomous serpents, and even of successfully resisting the poisonous effects of their bites. In more modern times, and, indeed, at the present day, the same belief is stated in the writings of many travellers, and passages confirmatory of this statement are found in the published works of William Bosman, the Rev. John Campbell, Drummond Hay, Honigberger, Nicholson, and Richardson. With this belief may be associated the further belief that venomous serpents are themselves protected against the effects of bites inflicted upon them by individuals both of their own and other species.

My first supplies of cobra venom were obtained in 1869, from the late Dr. Shortt, of Madras, and, in 1879, from Surgeon-Colonel Moir, of Meerut. They were in very small quantity, but with them I was able to satisfy myself that, by a succession of minute doses, animals became able to receive the minimum lethal dose without any distinct injury. At this point, however, the supply of venom failed, and the observations could not then be carried further. It became evident until large quantities of venom had been obtained definite results could not be hoped for.

It was not until several years afterwards that a sufficient supply had been gradually accumulated, by further small quantities received from Sir Joseph Fayrer, the Thakore of Gondal, and Dr. Phillips; and by larger quantities from Sir William Mackinnon, Director-General of the Army Medical Department, and, especially, from Surgeon-Colonel Cunningham, of Calcutta, who for many years has been engaged with much success in the study of venoms and their antidotes. Within the last few months, and subsequent to the publication of some of the experimental results which had by this time been obtained, the India Office has also placed at my disposal a considerable quantity of venom, which had been collected by Dr. Hankin, of Agra, at the

request of Dr. Cleghorn, Surgeon-General with the Government of India.

But besides these specimens of the venom of the cobra of India, I have obtained specimens of the venoms of several serpents of America, Australia, and Africa, with which, also, experiments have been made.

Previous Investigations.

Sewall, in 1886, undertook an investigation with the object of determining if immunity against the fatal effects of rattlesnake venom could be produced by the inoculation of repeated doses, each too small to produce ill effects. The experiments were made on pigeons, and he succeeded in proving that immunity can be secured to the extent, at least, of protection against seven times the minimum lethal dose.

Kanthack made a similar series of experiments in 1891, which led him to conclude that rabbits may be accustomed to resist lethal doses of cobra venom.

Working with the venom of vipers, Kauffmann in 1891, and Phisalix and Bertrand in 1893, obtained experimental evidence of the possibility of producing a definite, though not high degree, of resistance against the toxic effects of this venom.

In the following year Calmette, continuing some earlier observations which had led him to express the opinion that protection against snake venom could not be produced, published evidence confirming the results of previous investigators, but also showing that a higher degree of protection could be secured than they had obtained; for he succeeded in administering to each of several rabbits, within a period of eight months, a total quantity of from 30 to 35 milligrammes of cobra venom.

In 1894 also, both Phisalix and Bertrand, and Calmette obtained evidence of the power of the blood serum of protected animals to counteract the effects of venom. Calmette, at the same time, claimed that hypochlorite and chloride of calcium were antidotes of considerable value; and, in a later publication, he showed that the blood serum of animals immunised by the administration of venom, possesses a certain degree of antidotal efficacy against the toxins of several diseases.

Antivenene.

The Lecturer stated that his experiments had been chiefly made with the venom of the cobra, although the more important of them had been repeated with the venoms of the crotalus of America, the sepedon hæmachates of Africa, and a large serpent of undetermined species from the Diamantina district of Queensland.

The minimum lethal dose for several species of animals was first defined, and then protection was produced by the administration of a series of gradually-increasing doses—until, for instance, with cobra venom, rabbits became so far protected as to be able to receive in a single dose a quantity sufficient to kill fifty animals, and, in the course of five or six months, a total quantity sufficient to kill 370 animals of the same species and weight.

A description having previously been published of the antidotal properties of the blood serum of protected rabbits, the Lecturer mainly described experiments since made with the blood serum of a horse, which had last received a dose of cobra venom estimated to represent twenty times the minimum lethal. This blood serum, like that of rabbits and of other animals, is fluorescent, and when dried it yielded about 10 per cent. of a solid residue, which retains unchanged its antidotal properties for an indefinite period of time, and can readily be restored to its original liquid state by dissolving it in water. To it, whether in the dry or liquid form, the name "antivenene" has been given—a name which, notwithstanding etymological objections, has the great advantages of brevity and freedom from ambiguity.

The experiments were so planned as to obtain in several conditions of administration as exact a definition as possible of the antidotal power of the antivenene. In one series of experiments cobra venom was mixed outside of the body with this antivenene, and within a few minutes thereafter the mixture was injected under the skin of the animal; in a second series the venom and antivenene were separately and nearly simultaneously injected into opposite sides of the body; in a third series antivenene was injected thirty minutes before the venom; and in a fourth series the venom was first injected, and thirty minutes afterwards the antivenene.

In the first series, it was found that 0·0004 (1·2500) c.cm. per kilo. was a sufficient quantity of antivenene to prevent the lethal effect of slightly more than the minimum lethal dose of venom; that 0·24 c.cm. per kilo. of antivenene was required for one and a-half the minimum lethal dose; that 0·35 c.cm. per kilo. was required for twice the minimum lethal dose; that 0·65 c.cm. per kilo. was required for thrice the minimum lethal dose; that 1·2 c.cm. per kilo. was required for four times the minimum lethal dose; that 1·5 c.cm. per kilo. was required for five times the minimum lethal dose; that 2·5 c.cm per kilo. was required for eight times the minimum lethal dose; and that 3·4 c.cm. per kilo. was required for ten times the minimum lethal dose.

These results show that there is a remarkable accordance in the increment required in the dose of antivenene for each increment in the dose of venom. Indeed, from twice the dose of venom upwards, the addition of little more than 0.3 c.cm. per kilo. represents the addition in the quantity of antivenene required for each additional minimum lethal dose of venom. Apparently, when mixed *in vitro*, antivenene in this proportion is able to prevent death from almost any dose of venom, however large it may be. The results are in marked contrast with those that occur when an antidote acts because of its physiological properties, and they alone suggest that the antidotism is rather the effect of a chemical than of a physiological reaction.

In the second series, experiments with the antivenene from the horse have been completed only with one and a-half the minimum lethal dose of venom. When this dose was injected into the subcutaneous tissues at one side of the body, and immediately thereafter a dose of antivenene, at the opposite side, it was found that the smallest dose of antivenene capable of preventing death was 2 5 c.cm. per kilo.

In the third series, experiments have been made with the minimum lethal, one and a-half the minimum lethal, and twice the minimum lethal. With the first of these doses recovery occurred with 0.42 c.cm. per kilo. of antivenene; with the second, with 2.7 c.cm. per kilo.; and with the third, with 4.0 c.cm. per kilo.

In the fourth series, where the results give the truest indications of the antidotal value of antivenene in the actual treatment of snake bite, it was found that the smallest quantity of antivenene that could prevent death when injected thirty minutes after slightly more than the minimum lethal dose of venom was 0.65 c.cm. per kilo.; when injected thirty minutes after one and a-half the minimum lethal dose it was 3.2 c.cm. per kilo.; and when injected thirty minutes after twice the minimum lethal dose of venom it was 5 c.cm. per kilo.

It is impossible to consider the great difference between the dose of antivenene required when the two substances, though in each case simultaneously administered, are, in the one case, mixed together before injection, and, in the other, not so mixed, without having the suggestion again raised that the antidotism is the result of chemical and not of physiological reactions.

Ingestion of Antivenene.

In the experiments which I have hitherto described,

and, indeed, apparently in all others made in this new subject of serum therapeutics, protection has been produced and the antidotal properties of the antitoxic blood serum have been tested by the subcutaneous, or less frequently by the intravenous, injection of the venom or other toxic substances. No endeavour seems to have been made to discover how far the same effects, or what effects, may be produced by stomach administration.

Anticipating that results of an interesting nature might be obtained by this method of administration I have adopted it for the introduction of both antivenene and venom into the body, and the results have exceeded my anticipations.

Among other experiments with antivenene, single doses of 7 and of 10 c.cm. per kilo. were introduced into the stomach of white rats, in some instances three hours, in others two days, and in others three days before one and a half the minimum lethal dose of venom was subcutaneously injected, and in all cases the animals recovered.

A chemical theory, implying such a reaction between antivenene and venom as results in a neutralisation of the toxic activities of the venom, is, however, entirely compatible with the observed facts.

The difficulties encountered in the separation by chemical methods of the several constituents of venom are so great that it is not probable that the only proof or disproof of this supposition will soon be obtained by chemical analysis. Some physiological experiments which I have made seem, however, to go a long way in supplying the demonstration which in the meantime has not been obtained from chemistry.

With the object of determining, in the first place, if the disputed statement is correct that serpents' venom is inert, or nearly so, when introduced into the stomach of an animal, some cobra venom was administered, in a series of gradually-increasing doses, to a cat, until finally it had received a single dose 80 times larger than the minimum lethal, and to each of six white rats single doses corresponding to 10, 20, 40, 300, 600, and 1,000 times the minimum lethal if given by subcutaneous injection. Although no definite poisonous symptoms were produced by even the largest of these enormous quantities, it was found that the cat had so far been protected that it could afterwards receive by subcutaneous injection one and a-half the minimum lethal dose of cobra venom without any other injury than some localised irritation at the seat of injection, and that the white rat into whose stomach 1000 times the minimum lethal dose had been introduced by one administration survived perfectly when, seven days afterwards, the minimum lethal dose of venom was injected under the skin. It was also found that the blood serum of the cat was definitely antivenomous, and the curious fact, further, was ascertained that her progeny had acquired protection through the milk supplied by the protected mother.

These significant facts have been extended by a number of other experiments on white rats. In one series of experiments each animal received by stomach administration 500 times the minimum lethal dose if given subcutaneously, and, as before, no definite toxic symptoms were observed. On the day following this administration, three of the animals received subcutaneously one and a-half the minimum lethal dose of the same cobra venom, and they all recovered.

In a second series of experiments a dose of cobra venom equivalent to 1,000 times the minimum lethal, if subcutaneously injected, was introduced into the stomach. On several occasions in which this had been done, a subsequent injection under the skin of one and a-half the minimum lethal dose, made in some experiments two days and in others three days afterwards, resulted in the recovery of the animals. The extraordinary result was thus obtained that serpents' venom introduced into the stomach in large quantity, in a quantity which if injected under the skin would be sufficient to kill 1,000 animals of the same species and weight, while it failed to produce any definite symptoms of poisoning, nevertheless produced in a few hours complete protection against the lethal effect of a dose of venom more than sufficient to kill the animal.

Empirical Immunisation.

Early this evening I had occasion to point out that the leading facts connected with immunisation or protection, now being advanced as scientific novelties, had apparently been ascertained and practically applied for centuries by savage and uncultured tribes, and sects in various parts of the world. In regard to the results I have last described also, I discover that I have been anticipated by a long-existing and even now prevailing practice of unlearned savages.

In *The Lancet* of 1886 Mr. Alfred Bolton, L.R.C.P., states that "the natives in Bushmanland, Namaqualand, Damaraland, and the Kalakari are in the habit of extracting the poison gland from the snake immediately it is killed, squeezing it into their mouths and drinking the secretion, and they thereby appear to acquire absolute immunity from the effects of snake bites.....Having a month ago seen a native named Snellsteve, who is a snake-poison drinker and a snake collector, put his hand into a box containing two yellow cobras and several horn and night adders, in doing which he was severely bitten, and has never since suffered anything more than a little pain, such as might be caused by any trivial mishap, I feel I can no longer refuse to believe in the efficacy of the snake virus itself as a remedy against snake poison."

Among several communications on this subject which I have recently been favoured with is one from Dr. Knobel, of Pretoria, who writes that when a boy he came into frequent association with a shepherd, who informed him that for years he had been in the habit of swallowing small quantities of the dried venom glands of serpents, and he averred that by doing so he obtained protection against serpents' bites, for he had often been bitten without any ill-effect than that an irritable wound was produced. He stated that the swallowed venom of the cobra produced greater protection than the venoms of less poisonous serpents, and that not only was this benefit produced, but there was also produced an exciting intoxication, differing from that of Indian hemp in so far that the venom always produced the same degree of intoxication with a definite quantity however frequently it was taken, whereas the effects of the Indian hemp were gradually lessened by repetition.

Another correspondent, Dr. Laurence, of Cape Colony, writes that "a Kaffir boy, aged about 25 years, frequently brings me for sale snakes of all kinds. . . . I have frequently seen this boy take hold of some most deadly snakes, especially the well-known puff-adder, which he will allow to bite him with impunity. Yesterday, I obtained from him what he states as the reason why the poison did not harm him. When a little boy, while walking in the veldt, a puff adder fastened on his leg. He shook it off, called to his father, who, a few minutes after, killed the puff-adder and removed the poison glands. He then made small paper pellets and dipped them in the poison, and administered one occasionally to the boy, who stated that that cured him."

Some other letters I have received describe similar events, and also confirm the statement of Dr. Knobel that serpents' venom produces intoxicating effects, evidences of which have also been observed in many of the experiments made by me on the lower animals.

The results of the experiments in which the venom was introduced into the stomach probably afford an explanation of the protection enjoyed by certain snake-

charmers, as well as by other individuals who claim to be protected, whether members of special sects or not; for although inoculation of the venom is apparently sometimes practiced by them, and protection is no doubt assisted and maintained by the bites which, with impunity, they frequently receive, they are known also to swallow venom or the poison glands containing it.

Serpent Serum.

These experiments also seem to throw a new light upon the clearly-established protection possessed by venomous serpents against their own venom. They suggested the importance of determining if the blood serum of venomous serpents contains, as does that of artificially-protected animals, an actual substance possessing antivenomous properties.

In order to arrive at some definite conclusions on this subject, I last year obtained from India several living specimens of the hamadryad (*Ophiophagus elaps*), a serpent of greater size and more aggressive disposition than the cobra, and reputed to be as deadly as it. From the blood of several of these serpents a serum was separated which, when dried, gave a product having the same physical characters as the antivenene from artificially protected animals. It was tested against cobra venom, both when mixed with rather more than a minimum lethal dose and also when injected thirty minutes after this lethal dose of cobra venom. In the former case, 0·25 c.cm. per kilo. of this antivenene prevented death; and, indeed, so perfectly antagonised this certainly lethal dose that no decided symptoms of poisoning were manifested. In the latter case, 5 c.cm. per kilo. was found to be a sufficient quantity to prevent death.

I hope by-and-bye to extend these observations by testing the antidotal power of this serum against the venom of the actual hamadryad, from whose blood it had been separated. A determination of this kind has, however, been made with the blood serum and venom of the Australian black snake (*Pseudechis porphyriacus*), a deadly serpent whose bite produces intense destructive changes not only at the place where it has been inflicted, but also in the blood and in many of the organs of the body. When the blood serum and the venom of this serpent were mixed together outside of the body and then injected under the skin of a rabbit, it was found that half a cubic centimetre per kilogramme of the blood serum was sufficient to prevent death from rather more than the minimum lethal dose of the venom.

Its Value to Man.

In the meantime I cannot adduce any actual experience of its use in human beings, as although a considerable quantity, both in the liquid and dry state, was last summer sent to India, and a smaller quantity to Africa, no opportunity for using it as an antidote has as yet occurred in the districts to which it had been sent.

In snake bite in man it is impossible to estimate the dose of venom that has been introduced, for the nature of the symptoms of the patient cannot give the information even approximately. In searching for a solution of this problem several facts were taken into consideration which led me to conclude that the smallest quantity capable of producing death in a man of 10 stones would, according to certain data, be about 0·0317 gramme. In order successfully to prevent death from this dose it is probable that 330 c.cm. or about 11½ ounces of antivenene would be required, if injected not much longer than 30 minutes after the bite had been inflicted. This, though a large, is by no means an impossible dose, and it could without much inconvenience be introduced under the skin at several parts of the body. On the other hand, by assuming other data, the dose would be found to be a considerably smaller one, and one indeed which in the same circumstances would be successfully antagonised by about 4 ounces of antivenomous blood serum. Each of these quantities, further, could be reduced in bulk to about one-half by dissolving dried antivenene in half the quantity of water required to restore it to its original bulk.

In the foregoing remarks it has, however, been shown that even with the antivenene whose properties have been described, human life may be saved in a considerable, if not in a large, proportion of the cases of snake bite which would otherwise terminate in death. The attainment of this result is a satisfactory one, for the mortality from snake bite is large, and is not restricted to the 20,000 deaths which annually occur in India, but includes additional thousands in all the tropical and subtropical regions of the world. Against this ever-present and formidable enemy the inhabitants of these countries have awaited for centuries a remedy whose antidotal value and limits of curative power have been established by experimental demonstration.—*Brit. Med. Journal.*

PARLIAMENTARY.

Tuberculosis.

In the House of Commons, on Wednesday, April 22nd, Mr. Cawley (Lancashire, Prestwich) asked the President of the Local Government Board whether, in view of the fact brought to light by the Royal Commission on Tuberculosis that so many cows suffering from tuberculosis were giving milk which was supplied to consumers, and that the milk from these cows was dangerous to the health of human beings, he was prepared to institute some system by which all cows whose milk was sold for public consumption should be placed under compulsory inspection.

Mr. Chaplin (Lincolnshire, Sleaford).—While the report of the Commission of 1895 has dealt fully with the scientific aspects of the matter referred to in the question, no report has been made upon the administrative procedures necessary to give effect to the conclusions of the Commission. The Government have assented to the proposal that a Royal Commission should, therefore, be appointed to consider and further report upon these matters. Legislation would be necessary to enable me to order the compulsory inspection of all cows whose milk is sold for public consumption, and I think it should be postponed pending the inquiry which has been determined on. In the meantime, I may remind the hon. member that it is to be gathered from the report that by a very simple process—namely, by boiling the milk—immunity can be insured to the consumer.

Dr. Farquharson (Aberdeenshire, W.) asked whether it was not the fact that tuberculosis could not be spread from milk unless there was some disease of the udders of the cow; whether inspection could not be made both easy and effective; and whether during the time the new Commission was reporting many lives might not be lost.

The Speaker: I think the hon. member should give notice of that question.

Mr. Chaplin said he had stated that legislation would be necessary to give him the power of compulsory inspection. He had no doubt that there was a great deal in what the hon. member said, but he could not take action without legislation; and in view of the business before the House it would be impossible this Session.—*Times.*

Prof. McCall's Clydesdales.—The sale at Glasgow last week realised a total of £993 6s. The highest price was obtained for the nine-year-old mare Flower of Moray, at 100 guineas. A three-year-old filly fetched 90 guineas, and a brood mare and a two-year-old colt 70 guineas each. The average for 19 animals was £52 5s.

Rabies—A Department Enquiry.

The President of the Board of Agriculture has decided to appoint a Departmental Committee to enquire into the whole subject of the control of dogs, in the hope of devising means for stamping out rabies. Mr. C. A. Whitmore has consented to become Chairman of the Committee, and Lord Alwyne Compton, Captain R. Chaloner, and Mr. J. W. Cromlire members, whilst all the Government departments interested are to be represented.

Enteric Fever at Allahabad.

A severe epidemic of enteric fever has broken out in the Norfolk Regiment, 20 deaths occurring out of 47 cases since March 1. Twenty cases are still under treatment. The regiment only arrived at the end of last year. The Royal Irish Fusiliers, whom they relieved, also suffered, losing their colonel and several men. Mr. Hankin, the bacteriologist, finds that the water supplied from the waterworks is pure, but that bacilli are swarming in the earthern storage vessels in the barrack rooms. Their presence is unexplained, as the sanitary surroundings are apparently excellent. The epidemic proves the extreme susceptibility of young soldiers to enteric fever, which now accounts annually for one-third of the total deaths occurring in the British garrison.—*The Times*.

THE VETERINARY DEPARTMENT IN INDIA.

In the proposed law to extend the Glanders and Farcy Act to the whole of India, recently discussed in the Viceroy's Council, it was suggested that veterinary surgeons in military employment should be appointed veterinary surgeons and inspectors under the Act. In other words, the Civil Veterinary Department being unable, owing to its paucity of officers, to carry out the provisions of the law, the military are to have an onerous and responsible duty thrown on them, to help the Government of India to stamp out disease amongst civil animals. This stamping out of disease is the chief *raison d'etre* of the Civil Veterinary Department. Yet on the first attempt to frame a law with this object in view, extraneous aid has to be called in. No mention is made of any remuneration for the military men, when employed in this work. It may therefore be concluded that none will be given. The Government will thus be able to pose as a benefactor to his native subjects, at the expense of the Army Veterinary Department. A very economical form of philanthropy.—*Lahore Gazette*.

The *Pioneer* of Allahabad says: "It is believed that Vet.-Major Reilly, Royal Horse Guards (Blues), will succeed Vet.Lieut. Col. Poyser, D.S.O., on the retirement of the latter in April next year; Vet.-Col.-Duck, the present Principal Veterinary Officer in India, succeeding Vet.-Col. Drummond-Lambert, C.B., at the War Office as Director of the Army Veterinary Department. Rumour mentions Vet.-Col. Queripel the Inspector-General, Civil Veterinary Department, as Col. Duck's possible successor in India. In the event of this, Vet.-major Glover, who is next for promotion after Major Reilly, would probably be offered the Inspector-Generalship of the Civil Veterinary Department."

Vet.-Majors J. W. Evans and S. Duff-Gillespie have been granted six months' leave from India to England, on private affairs.

OBITUARY.

JOHN DAVIS BARFORD

Sincere regret will be felt throughout the profession at the death of Mr. Barford, of Southampton, which took place on Monday, 13th instant. The deceased gentleman had for many years taken an active part in all kind of professional work. Whether at the meetings of Council or at the meetings of Veterinary Medical Societies, Mr. Barford's views were always listened to with respect. His actions were directed by a true desire for professional progress and his words were expressed with a fairness and moderation that rendered him a persuasive advocate and a safe guide.

Mr. Barford graduated in 1849 and became a Fellow by examination in 1886. This was late in life to submit to a test which frightened younger men, but our deceased friend had never lost touch of the science of his profession and he was always a careful clinical observer.

In 1856 Mr. Barford read a paper before the South Hants Farmers Club "On the Physiology of Breeding." He contributed articles to *The Veterinarian*, and he read some papers to Veterinary Medical Societies. He was always closely connected with Agricultural Societies and was rightly esteemed to be a leading authority on horse shoeing. For years past he acted as judge at quite a large number of annual horse-shoeing competitions conducted at various agricultural shows, and thus did a great deal to bring into practice sound ideas and good workmanship. From 1884 to 1885 he was a vice-president of the R.C.V.S., and he sat as a Member of Council from 1886 to 1894.

Mr. Barford has had a successful and distinguished career. His loss will be felt by agriculturists and veterinarians not merely as a skilful practitioner but as a helpful adviser and a genial friend.

JOHN DAVIS BARFORD, F.R.C.V.S.. Southampton.
Graduated, London, May 18, 1849; Fellow, Feb., 1886.

JOHN CHAPMAN, M.R.C.V.S., Gainsborough.
Graduated, London, Nov. 26, 1833.

ALEX. MARKING, M.R.C.V.S., Sudbury, Suffolk.
Graduated, Edinburgh, April, 1869.

G. H. PEMBERTON, M.R.C.V.S., Stainston, Gloucester.
Graduated, Edinburgh, April, 1864.

On Tuesday night 14th inst., the intelligence quickly spread through the town of the death of Mr. John Chapman, aged 82 years, M.R.C.V.S., Lond., who had been in practice in Gainsbro' as veterinary surgeon for about 50 years. He was well known throughout North Lincolnshire as a skilful practitioner, and his form and figure were familiar to all Gainsbro' residents. He was a Nottingham man, and assisted his county in the cricket field in the early forties, being contemporaneous with Alfred Mynn, against whom he played in a Notts v. Sussex match at Nottingham in 1842, making 41 runs. In the same year he played with five gentlemen and five players against eleven Nottinghamshire players. He also played as a Notts gentleman against Sheffield at the same period, and scored 39. In August, 1842, he played for Notts against England, and was bowled by Mynn after scoring 11, the highest scores on the other side being Mynn 61, and Pilch 60. In 1843, against M.C.C., he was the only gentleman player in the Notts team, and was not out 10. In 1843 Notts played Sussex and scored the large total in those days of 326, Mr. Chapman contributing 41. In 1844, playing for Notts players v. Gentlemen of England, Chapman bowled Pilch and Mynn each with the first ball, Pilch having compiled 50 before Chapman was put on. He bowled against England for Notts in 1847 for T. Barker's benefit, and was not out 28. His

father and he practically made the famous Trent Bridge ground, and on John Chapman's removal to Gainsbro' he was of infinite assistance to the local eleven both in the bowling and batting departments. The inquest was held by Mr. Ineson at the Gainsbro' Police Station. Dr. Nicholson, who made a post-mortem examination, stated that he found no traces of poison, and attributed death to apoplexy, and a verdict to this effect was returned.—*Sheffield Independent.*

Tragic Death of Mr. Arthur Marriott.

Mr. J. G. Calthrop, the Spalding Coroner, held an inquest at Holbeach on Saturday afternoon, on the body of Arthur Marriott, aged 29, veterinary surgeon, of Holbeach, who had committed suicide. The evidence showed that the deceased, who is a brother of Mr. S. J. Marriott, veterinary surgeon, of Northampton, who had formerly practised at Kettering, was found in his surgery dead, whilst in an open drawer were two bottles of prussic acid, from one of which two drams had been taken. A post mortem examination revealed the fact that death was due to poisoning by prussic acid. The deceased had been about his professional duties that day, and on a desk in his surgery he left a note giving particulars of business requiring attention, sending his love to his mother, stating that he could not help the action he was taking, and directing his brother to be wired for from Northampton. The jury returned a verdict of "Suicide whilst temporarily insane." Much sympathy is expressed with the deceased's mother, who during her residence in Kettering was most highly respected.—*The Wellingboro' News.*

CORRESPONDENCE.

RESPIRATORY DISEASES IN INDIA.

Sir,

Horses bred in India and South Africa and some other similar climatic regions are practically free from "roaring," and, in a few words, are not nearly so subject to disease of the respiratory organs as in England.

Horses in the former named countries are stabled, generally speaking, in the open air, or at any rate in such quarters that the air is allowed to thoroughly ventilate the building. Now what is the state of things in this country? I have lived in South Africa, and many other places beyond the briny ocean, and I have entered thousands of stables in this country. Insufficient ventilation, bad drainage, stinking stables!!! Educated and rich people generally make their coachmen and grooms attend to sanitary matters.

The following incident happened to me not long since, and many another V.S. could tell similar tales. A livery stable keeper and horse dealer, by no means well versed in physiology, sent for the writer to attend a horse suffering from abdominal pain, at 6 a.m. Whilst there we went to the bottom of the yard and there was a stable in which were three horses. It had not been opened (*i.e.* the doors) since the animals were tended the previous night. One of these three was "blowing." And no wonder! I am sure I should have been almost suffocated if I had spent the night under the same conditions. For many years the building had been used for horses. The floor was saturated with urine and filth, and they were always careful to shut all doors and windows because "they liked to keep the 'osses warm." Ammonia was very plentiful.

Under these conditions who can wonder that the delicate mucous membranes of the air passages become diseased? This state of things does not exist so much in India and South Africa and California. In a rough and ready way I explained to this individual that this was not healthy. His own residence was stifling, and the odour was disagreeable to say the least, and they appeared to think it almost a sin to open the windows. I have no desire to go to the other extreme, I like moderation in all things, but I believe the time will come when a simple covered shed and a protection from the north and east winds, coupled with warm and plentiful blankets or rugs for the animal's body will be found all that is needful. Even clipped horses, if the whole body were covered, could be stabled in this way. As soon as horses are "got up" from pasture or straw yards, then they almost immediately are the subjects of colds, sore throats, influenza, whistling and "roaring."—Yours faithfully,

Sanitary.

"VETERINARY OPINIONS."

Sir,

It is quite exhilarating to hear there is a veterinary opinion that is *universally* respected. Personally I should like to know and live with that gentleman for a time. My experience of the respect given to our opinions is that those of us who can give opinions, whether right or wrong, that are *most suitable to our employers* are those that are most respected; and those of us who can manage to give such opinions in the *large majority* of cases are called upon to give them, will be those who are most (or universally) respected.

Here is an illustration: A friend and client came to me for advice, and I asked him whether the animal he was driving at the time was for sale, he answered it was, then I said show it to my neighbour as he wants just such an animal. He did so, and my neighbour drove it, and liked it, and bought it *subject to my examination*. My friend brought the mare back to me to be examined, and I found it had a small cataract about the size of a pin's point right in the centre of the pupil. I told my friend of it and remarked that I believed any other veterinary surgeon in the town would pass it, and he answered, "well! if it is so small you need not say anything about it, to which I replied, No! I hope you know me well enough to know I should not do that, what would you think of me if you were buying and my neighbour were selling, and I acted so towards you?" Needless to say my neighbour had my opinion and refused to buy the horse as he was particularly averse to any disease of the eyes. My friend (taking my hint) took the horse to another veterinary surgeon (not a Fellow I am pleased to say) and obtained a "sound" certificate which my friend took to my neighbour, and got severely rebuked for his trouble by being told that if he would give him the animal he would not accept it, as such practices were not at all to his taste, nor according to his principles of business.

In order to test my friend's idea of the correctness of my opinion I suggested that he should have the mare examined by as many V.S's as he thought fit, and if the *majority* agreed with me then *he* should pay their fees, and if they didn't that I should do so. I may say I did this because I believe we are the *only* tribunal that can settle such disputes.

My friend has from that day ceased to be my client, and has remained one to the Member from whom he obtained the sound certificate of his mare, and whose opinion he evidently *respected*. Why? *Because he thought it would answer his purpose.* I hope this is not the kind of respect referred to in yours of last week. I may add from my experience of examining horses at shows, that I should be inclined to allow a tolerable margin for any opinion that might be given there, because the conditions under which they are arrived at are by no means satisfactory. What proof have we "the Fellows" were not right after all? Such distinctions are invidious.

G. A. Banham, F.R.C.V.S.

Southern Counties V.M.A.—A CORRECTION.

Sir,

In the report of the paper read by me before the Association on Thursday, April 2nd, there is a small error in the formula given for an iodoform ointment, it should be ol. eucalypt dr. j. instead of oz. j., the complete formula being:—

Iodoform gr. iv.
Ol. Eucalypt dr. j.
Vaseline oz. j.

Yours faithfully,
E. Whitley Baker.

Communications, Books, and Papers received:—Capt. Hayes, Messrs. E. W. Baker, W. J. Wagstaffe.
Journal Comp. Med. and Vety. Arch. (Philadelphia, April), *Stable Management*, *The Civil and Military Gazette* (Lahore).

Veterinary Societies—Addresses.

Alterations for this list must be duly notified by the Secretaries

Bombay V.M.A.
Pres: Major Jas. Mills, M.R.C.V.S.
Vice-Pres: Dr. S. K. Nariman, M.D., B. SC., L.V.SC.
N. D. Dhakmarwala, Esq., G.B.V.C.
S. N. R Ranina, Esq., G.B.V.C.
N. Narsingrao, Esq., G.B.V.C.
Hon. Sec. & Treas: V. E. Vakharia, Esq., G.B.V.C.

Border Counties V.M.S.
Pres: Mr. J. Armstrong, F.R.C.V.S., Penrith
Treas: Mr. H. Thompson, M.R.C.V.S., Aspatria.
Hon. Sec: Mr. J. W. Hewson, M.R.C.V.S., Warwick-rd, Carlisle
Meetings, Second Friday of Feb., June, and October

Calcutta V.M.A.
Pres: Mr. Greenhill, M.R.C.V.S.
Hon. Sec: Mr. T. Assheton Smith, 156 Dhurrumtollah

Central V.M.A.
Pres. Professor J. Penberthy, F.R.C.V.S.
Hon. Sec: Mr F. C. Mahon, M.R.C.V.S.,
93 Huddlestone-rd. Tufnell Park, N.
Meetings, First Thursday in each month, except August and September, 10 Red Lion Square. Holborn, at 7 p.m.

Eastern Counties V.M.A.
Pres: Mr. W. Shipley, M.R.C.V.S., Great Yarmouth
Hon. Sec.: Mr. W. Shipley, Jnr., Southtown, Gt. Yarmouth
Meetings, Second Tuesday, Feb. and July

Glasgow V.M.S.
Pres. Principal McCall.
Hon. Sec. Mr. J. A. Todd.

Vet. Med. Assn. of Ireland.
Pres: Mr. T. D. Lambert, F.R.C.V.S. Store Street, Dublin
Hon. Sec. Mr. J. McKenny, M.R.C.V.S.,
116 Stephens-green-west, Dublin

Lancashire V.M.A.
Pres: Mr. Joseph H. Carter, F.R.C.V.S., Burnley
Hon. Sec: Mr. Harry D. Chorlton, M.R.C.V.S.,
97A Oxford Street., Manchester
Meetings, 1st Thursday in March, June, Sept., & Dec.

Lincolnshire V.M.S.
Pres: Mr. T. A. Rudkin, M.R.C.V.S., North Street, Grantham
Hon. Sec: Mr. J. A. Robinson, M.R.C.V.S., Market Deeping
Meetings, Second Thursday, Feb., June and October

Midland Counties V.M.A.
Pres: Mr. F. L. Gooch, F.R.C.V.S., Stamford.
Hon. Sec: Mr. H. J. Dawes, F.R.C.V.S.,
Camden House, High St., West Bromwich
Meetings, Second Friday in Feb., May.
Second Tuesday in August, November

National Vet. Association.
Pres: Mr. W. T. J. Bower, M.R.C.V.S., East Rudham, Norfolk
Sec: Prof. Macqueen, London
Treas: Mr. F. W. Wragg, F.R.C.V.S., Whitechapel, London.
Chairman of Prov. Com: Mr. W. Shipley. Jnr., F.R.C.V S.,
South Town, Great Yarmouth
Sec. of Prov. Com: Mr. W. R. Mills, M.R.C.V.S.
Castle Meadow, Norwich

National Veterinary Benevolent & Mutual Defence Society.
Pres: Mr. Geo. Morgan, F.R.C.V.S., 95 Stanhope-st. Liverpool
Treas: Mr. E. Faulkner, F.R.C.V.S., Manchester
Hon. Sec: Mr. Sam. Locke, M.R.C.V.S.,
Grosvenor Street, Oxford-st., Manchester

New South Wales V.M.A.
Pres: Mr. John Stewart, H. and A.S.
Vice: Mr. Edward Stanley, F.R.C.V.S.
Hon. Sec. & Treas: Mr. A. P. Gribben, M.R.C.V.S.

North of England V.M.A.
Pres: Mr. G. M. Mitchell, M.R.C.V.S., Sunderland
Hon. Sec: Mr. F. T. Finney, M.R.C.V.S,
20 Benshaw-road, Gateshead-on-Tyne
Meetings, Third Friday, Feb., May, Aug. and Nov.

North of Scotland V.M.S.
Pres: Mr. James Thompson, M.R.C.V.S., Aberdeen
Hon. Sec: Mr. W. Skinner, M.R.C.V.S., Old Meldrum

Ontario V.A.
Pres: Mr. G. L. Robson.
Sec: C. H. Sweetapple, Toronto.

Royal Counties V.M.A.
Pres: Mr. A. L. Butters, M.R.C.V.S., Paddington. London, W
Hon. Sec: Mr. J. Sutcliffe Hurndall, M.R.C.V.S.,
Sussex Villas, Cornwall Gardens, South Kensington
Meetings, Last Friday, Feb., June and Nov.

Royal Scottish V.S.
Pres: Mr. Reid, M.R C.V.S, Auchtermuchty.
Hon. Sec: Mr. W. D. Fairbairn, M.R.C.V.S., Cupar, Fifeshire

Royal Veterinary College M.A.
Pres: Prof. Hobday.
Hon. Sec: Mr. Reeks, M.R.C.V.S.
Assist. H.S. Mr. F. Crowhurst, R.V.C., Camden Town, N.W.

Scottish Metropolitan V.M.S.
Pres: Mr. John Cameron, M.R.C.V.S., Berwick-on-Tweed
Hon. Sec: Mr. P. Moir, M.R.C.V.S., 9 Kilmain Terr. Edinbro'

South Durham and North Yorkshire V.M.A.
Pres.: Mr. P. Snaith, M.R.C.V.S., Bishop Auckland.
Hon. Sec: Mr. W. Awde, F.R.C.V.S., Stockton-on-Tees.
Meetings, First Friday, Mar., June, Sept. and Dec.

Southern Counties V.M.S.
Pres: Mr. J. T. King, M.R.C.V.S, Bournemouth, Hants
Hon. Sec: Mr. C. Pack, M.R.C.V.S., Lymington, Hants.
Meetings, Last Thursday, Mar., June and Sept.

South Wales and Monmouthshire V.M.A.
Pres: Mr. W. T. Edwards, M.R.C.V.S., 83 Windsor-st, Neath
Hon Sec. Mr. Frederic D. McLaren, F.R.C.V.S.,
161 Ystrad Road, Pentre, R.S.O., Glamorgan
Meetings, First Thursday in March, and Autumn.

Western Counties V.M.A.
Pres: Mr. C. Hedworth Golledge, M.R.C.V.S.,
Sherborne, Dorset
Hon. Sec: Mr. W. B. Nelder, F.R.C.V.S., Paul Street, Exeter
Meetings, Third Thursday, March and September.

West of Scotland V.M.A.
Pres: Dr. James McIntosh McCall, Vety. Coll. Glasgow
Treas: Mr. John Neil, M.R.C.V.S., Partick
Hon. Sec: Mr. Hugh Begg, M.R.C.V.S., East Kilbride

Yorkshire V.M.A.
Pres; Mr. J. Clarkson, M.R.C.V.S., Garforth
Hon. Sec; Mr. Frank Somers, M.R.C.V.S., 4 Wade Lane, Leeds
Meetings, Last Friday in Jan., April, July, and October.